

REMARKS

Claims 4 and 12 have been rejected under 35 U.S.C. § 112 for indefiniteness as being dependent upon cancelled claims. The dependencies have been amended to claims 1 and 7, as suggested by the Examiner.

Claims 1-2, 4-5, 7-8, and 10-11 have been rejected under 35 U.S.C. § 112 for lack of enablement as the claims are broadly drawn, but the specification only provides guidance for producing maize plants using the traits waxy, sugary2 or white endosperm. Applicants disagree. The specification discloses a number of additional traits, including waxy sugary-1 (*su1*), sugary-3 (*su3*), amylose extender (*ae1*), dull (*du1*), horny (*h*), shrunken-1 (*sh1*), shrunken-2 (*s2*), floury-1 (*fl1*), floury-2 (*fl2*), and the opaque series (*o1-o14*). Further, in the Examples section, there are numerous examples of other hybrids being in the claimed methods, specifically to the traits waxy (*wx1*), sugary-2 (*su2*), amylose extender (*ae1*), dull (*du1*), and white endosperm (*y1*).

Guidance is given in that the method of planting is explained in detail. That is, the two maize hybrids are planted in alternating blocks of rows at least 4 rows wide, the first hybrid is a male fertile seed which is homozygous recessive for two desired triploid traits; the second hybrid is male sterile homozygous recessive for one of the two traits and homozygous dominant for the other, permitting the fertile plant to pollinate the sterile plant, and harvesting the two hybrids separately. No other steps would be necessary for one skilled in the art to be able to plant maize seed according to the method of the present invention using seeds with other recessive traits.

As the Examiner know, 35 U.S.C. § 112 states that the "specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear and concise terms as to enable an person skilled in the art to which it pertains" "to make and use the same". The above detailed guidance clearly enables one skilled in the art to make and use the invention of planting maize.

The Examiner continues by stating that no guidance is provided for the actual "obtention" of said progeny plants containing the desired genotypes. Applicants do not understand this rejection. The progeny plants are grown using the method described and then are harvested using methods known in the art.

The Examiner also states that no guidance is provided for the use of the starch produced. One skilled in the art of starch would understand that the starch may be used in the industry as current starches are used. However, this is irrelevant as starch is not being claimed. The resultant seed may be used to grow further corn (maize), as food (animal and/or human), or for any other use of corn known in the art including starch production.

The Examiner cited several patents which teach that certain double recessive mutations in kernel traits exhibit reduced pollen germination or reduced seed germination. However, this does not affect enablement, as reduced pollen germination or seed germination would still result in plants. That double

recessive maize plants produce progeny is evidenced not only by the present application, but also by many other publications, etc. including some of the art disclosed in this case.

The Examiner further states that the effect of single or double recessive kernel traits on starch quality and quantity are unpredictable, citing several additional patents. However, this again does not affect enablement, as one skilled in the art could still follow the method to make seed. Hybrids with inferior quantity and/or "quality" of starch are currently being commercially grown, with premiums being paid for the seed containing reduced starch, such as high amylose maize.

The Examiner finally states that undue experimentation would be needed by one skilled in the art to develop a multitude of non-exemplified double homozygous recessive mutant maize hybrids, cross them with a multitude of non-exemplified homozygous recessive/homozygous dominant mutant maize hybrids, obtain sufficient levels of gene transmission or seed germination/plant production, and to evaluate the starch produced by such progeny for quality and quantity. Applicants respectfully disagree. To begin, it has been explained that sufficient guidance has been given in that the method is explicitly explained in sufficient detail to allow one skilled in the art to practice the method. Numerous examples have been carried out using a variety of hybrids. Regarding the Examiner's statement to development of the parent hybrids, a multitude of these are known in the art and commercially available from seed companies. These seeds provide sufficient levels of gene transmission to provide F1 hybrids. Testing of the quality or quantity of the starch is irrelevant to patentability of this invention.

As it is clear that the method may be carried out by one skilled in the art using seed already commercially available using nothing more than the guidance provided in the specification to produce hybrid seed, nothing further is necessary for enablement, and the rejection has been overcome. Applicant submits the Application is now in condition for allowance and respectfully requests early notice to that effect.

Respectfully submitted,



Karen G. Kaiser
Attorney for Applicants
Reg. No. 33,506

National Starch and Chemical Company
P.O. Box 6500
Bridgewater, NJ 08807-0500
(908) 575-6152

Dated: 12 NOV 04

62606